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SHUMAKER & SIEFFERT, P.A
1625 RADIO DRIVE , SUITE 300
WOODBURY, MN 55125

EXAMINER	
LAI, ANDREW	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@ssiplaw.com

Office Action Summary	Application No.	Applicant(s)	
	10/777,391	FRANCE, ROBERT M.	
	Examiner	Art Unit	
	Andrew Lai	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 29 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 29 recites "*a computer-readable medium comprising instructions to cause a processor to: ...*" This claim language does not conform with acceptable language format. Below are examples of acceptable language regarding computer-processing related claims:

A. "computer readable medium encoded with _____
- [a] "a computer program"
- [b] "software"
- [c] "computer executable instructions"
- [d] "instructions capable of being executed by a computer"

B. "a computer readable medium" _____ "computer program"
- [a] "storing a"
- [b] "embodied with a"
- [c] "encoded with a"
- [d] "having a stored"
- [e] "having an encoded"

Correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 34-37 are rejected under 35 U.S.C. 102(b) as being anticipated by Deng (US 6,243,394).

Deng discloses an invention wherein "an ADSL access device controls communication through one or more ADSL channels" (Abstract line 1, and which ADSL access device depicted in fig. 5) comprising the following features:

Regarding claim 34, *a method* (a method "relates to transmission of data", col. 1 line 4) *comprising:*

processing a packet with a first interface (fig. 5 for "a single level ADSL access device", col. 4 lines 1-2, having *a first interface*, e.g., "ADSL modem 150" and "protocol converter 172", which interface "convert the protocol of data packets received on the ADSL channel", col. 7 lines 52-53) *to associate the packet with meta data* ("internal protocol", col. 7 line 57) *that defines protocol-independent policy information* ("internal format [protocol] of the access device, such as for example direct memory access (DMA) bus", col. 7 lines 54-55, noting that said "internal format [protocol]" or "DMA" must define *policy information* for said internal "bus" or otherwise the internal communication will not be possible and also since the "DMA" is internal, it is *protocol-independent* with external protocols. Furthermore, see "the ADSL protocol converters 172, 182 and 192 convert the protocol of data packets received on the ADSL channel from ADSL protocol to an internal format of the access device, such as for example direct memory access (DMA) bus, and convert data packets transmitted to the ADSL

channel from the internal protocol to ADSL protocol", col. 7 lines 51-57, noting that herein cited ADSL to internal "protocol conversions" will have to follow the rules or *policies* that regulate how said conversion should be conducted); *and*

subsequently processing the packet with a second interface (fig. 5 "protocol converter 162" connected to "WAN router 16", and "the WAN protocol converter 162 ... converts the protocol of data packets transmitted to the wide area network from internal protocol to WAN protocol", col. 7 lines 57-63, and again noting that herein cited internal to WAN "protocol conversion" will have to follow the rules or *policies* that regulate how said conversion should be conducted) *in accordance with the protocol-independent policy information* (noting that operation cited hereinabove can be summarized as "ADSL protocol" ↔ "internal protocol" ↔ "WAN protocol" wherein "internal protocol" as a *policy information* in "an internal format of the access device, such as for example direct memory access (DMA) bus" is *protocol-independent* to any external protocols).

Regarding claim 35, *wherein processing a packet comprises applying a first policy to the packet to map the packet to the protocol-independent policy information* (the "ADSL protocol" ↔ "internal protocol" mapping, which necessarily requires *applying a first policy to the packet to map the packet to* "internal protocol" which takes "an internal format of the access device, such as for example direct memory access (DMA) bus", col. 7 lines 54-55, *independent* of external *protocols*) *wherein the first policy is specific to a first protocol* (said mapping is a "ADSL protocol" *specific* mapping), *and*

wherein subsequently processing the packet comprises mapping the protocol-independent policy information to a second policy that is specific to a second network

protocol and applying the second policy to the packet (the "internal protocol" ↔ "WAN protocol" mapping, which necessarily requires *mapping the protocol-independent policy information* of "internal format of the access device" *to* "WAN protocol").

Regarding claim 36, *wherein applying a first policy comprises applying the first policy to first header information of the packet, wherein the first header information conforms to a first network protocol* (in the "ADSL protocol" ↔ "internal protocol" mapping, packet will necessarily come in with *the first header information conforms to a first network protocol* "ADSL protocol" and ends up, after the *mapping applying the first policy*, with "internal protocol" of "internal format of the access device"), *and*

wherein applying a second policy comprises applying the second policy to second header information of the packet, wherein the second header information conforms to a second network protocol (in the internal protocol" ↔ "WAN protocol" *mapping*, packet will necessarily start with the "internal protocol" and ends up with *second header information* "WAN protocol" *conforming to a second network protocol* of "wide area network" as a result of *applying the second policy*).

Regarding claim 37, *further comprising:*

storing the protocol-independent policy information (above cited "internal format of the access device, such as for example direct memory access (DMA) bus") *as metadata with a memory of a network device* (this is a necessary precondition for Deng's "ADSL access device" in order to perform "ADSL protocol" ↔ "internal protocol" ↔ "WAN protocol" protocol mapping); *and*

associating the metadata (the "internal format of the access device") *with the packet throughout an entire packet-processing path of the network device* (refer to fig. 5 and see the *entire packet-processing path*, e.g., between "protocol converter 172" and "protocol converter 162" wherein *the packet* will assume said "internal format of the access device" or "internal protocol").

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> **(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.**

5. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Deng (US 6,243,394) in view of Kuhl et al (US 2003/0118026, Kuhl hereinafter).

Deng discloses claimed limitations in paragraph 3 above as applied to claim 34. Deng also discloses, regarding claim 38, the following features:

protocol-independent policy information (above cited, regarding claim 34, "internal protocol" in "an internal format of the access device, such as for example direct memory access (DMA) bus").

Deng however does not disclose the protocol-independent policy information *comprises protocol-independent CoS information.*

Kuhl discloses "system and method of translating a set of transmission parameters related to a first transmission protocol from said first transmission protocol to a second transmission protocol" (Abstract lines 1-3) comprising:

Regarding claim 38, the protocol-independent policy information *comprises protocol-independent CoS information* ("a first sub-module mapping a first parameter from said set of transmission parameters to a class of service value for said connection; and a second sub-module mapping said class of service value and a second parameter from said set of transmission parameters to another transmission parameter for said second transmission protocol", page 8 left column the seven lines immediately above claim 13).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Deng by adding the CoS mapping of Kuhl to Deng's protocol conversion method/system in order to provide a more widely applicable method/system capable of "mapping quality of service levels between MPLS and ATM connections in a network element" (Gobbi, [0004]) allowing "for providing differentiated quality of service (QoS) levels" so that "a connection traveling through both an ATM and a MPLS network may have separate, but similar, QoS levels associated with each network" (Gobbi, [0003]).

6. Claims 1-3,5-10,12-17,19-22, and 25-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deng (US 6,243,394) in view of Applicant admitted art or alternatively in view of Gobbi et al (US 2002/0044558, Gobbi hereinafter).

Deng discloses an invention wherein "an ADSL access device controls communication through one or more ADSL channels" (Abstract line 1, and which ADSL access device depicted in fig. 5) comprising the following features:

- **With respect to Independent claims 1, 15, 26 and 29**

Regarding claim 1, *a method* (a method "relates to transmission of data", col. 1 line 4) *comprising:*

receiving a packet (refer to fig. 5 and see "The ADSL access device 14 receives and transmit digital data", col. 4 lines 26-27, and fig. 5 depicting "twisted pair loops" receiving/transmitting *packets* from/to ADSL local network and data link 164 receiving/transmitting *packets* from/to "WAN" or Wide Area Network) *having a first* protocol *that conforms to a first network protocol* (see, e.g., "data packets received on the ADSL channel from ADSL protocol", col. 7 lines 53-54);

indirectly mapping the first protocol *information* (e.g. the "ADSL protocol") *to a second* protocol *information* (e.g. "WAN protocol", col. 7 line 56) *using an intermediate* protocol *information* (e.g. "internal protocol", col. 7 line 57, and still refer to fig. 5 and see, on the one hand, "the ADSL protocol converters 172, 182 and 192 convert the protocol of data packets received on the ADSL channel from ADSL protocol to an internal format of the access device, such as for example direct memory access (DMA) bus, and convert data packets transmitted to the ADSL channel from the internal protocol to ADSL protocol", col. 7 lines 51-57, and further, on the other hand, "the WAN protocol converter 162 converts the protocol of data packets received from the wide area network from WAN protocol, such as frame relay or ATM protocol, to the internal

protocol of the access device and converts the protocol of data packets transmitted to the wide area network from internal protocol to WAN protocol", col. 7 lines 57-63. Therefore, Deng clearly established an *indirect mapping* or conversion of different *protocols* that can be simplified as: "ADSL protocol" ↔ "internal protocol" ↔ "WAN protocol"); *and*

forwarding the packet with the second protocol *information* (fig. 5 depicting bi-directional *forwarding the packet,* i.e., "WAN" (in "WAN protocol") ↔ "ADSL" (in "ADSL protocol")).

Regarding claim 15, *a system* (fig. 5 for "a single level ADSL access device", col. 4 lines 1-2) *comprising:*

a first interface (fig. 5, e.g., "ADSL modem 174" and associated "protocol converter 172") *to receive a packet* (see, e.g., "data packets received on the ADSL channel", col. 7 line 53) *having a first* protocol *that conforms to a first network protocol* (see, e.g., "data packets received on the ADSL channel from ADSL protocol", col. 7 lines 53-54), *wherein the first interface maps the first* protocol *information to an intermediate* protocol *information* ("the ADSL protocol converters 172, 182 and 192 convert the protocol of data packets received on the ADSL channel from ADSL protocol to an internal format of the access device, such as for example direct memory access (DMA) bus", col. 7 lines 51-55; *and*

a second interface (fig. 5, e.g., "protocol converter 162" communicating with "WAN router 16") *to map the intermediate* protocol *information to a second* protocol *information that conforms to a second network protocol* ("the WAN protocol converter

162 ... converts the protocol of data packets transmitted to the wide area network from internal protocol to WAN protocol", col. 7 lines 57-63).

(note that putting above together, Deng discloses a protocol conversion process of "ADSL protocol" ↔ "internal protocol" ↔ "WAN protocol").

Regarding claim 26, *a network device* (fig. 5 depicting "a single level ADSL access device", col. 4 lines 1-2) *comprising a control unit* (fig. 5, e.g., "ADSL channel controller 150", col. 7 line 33) *that associates intermediate* protocol *information* ("internal protocol", col. 7 line 57) *with a packet in indirectly map first* protocol *information* (e.g., "ADSL protocol", col. 7 line 53) *that conforms with a first network protocol* (see, e.g., "data packets received on the ADSL channel from ADSL protocol", col. 7 lines 53-54) *to second* protocol *information* (e.g. "WAN protocol", col. 7 line 56) *that conforms to a second network protocol* ("wide area network from WAN protocol", col. 7 line 59, and further see Deng col. 7 lines 51-63 for such *indirect map first* protocol to *second* protocol using an *intermediate* protocol, which can be summarized as: "ADSL protocol" ↔ "internal protocol" ↔ "WAN protocol").

Regarding claim 29, *a computer-readable medium comprising instructions to cause a processor* (fig. 5, "a single level ADSL access device", col. 4 lines 1-2) *to* (the following operations disclosed by Deng will have to be performed by *a computer-readable medium* encoded with computer executable *instructions*):

receive a packet (refer to fig. 5 and see "The ADSL access device 14 receives and transmit digital data", col. 4 lines 26-27, and fig. 5 depicting "twisted pair loops" receiving/transmitting *packets* from/to ADSL local network and data link 164

receiving/transmitting *packets* from/to "WAN" or Wide Area Network) *having a first* protocol *that conforms to a first network protocol* (see, e.g., "data packets received on the ADSL channel from ADSL protocol", col. 7 lines 53-54); *and*

process the packet to include intermediate protocol *information* ("internal protocol", col. 7 line 57) *for mapping the first* protocol *information* (e.g., "ADSL protocol", col. 7 line 53) *to a second* protocol *information* (e.g. "WAN protocol", col. 7 line 56) *that conforms to a second network protocol* ("wide area network from WAN protocol", col. 7 line 59, and further see Deng col. 7 lines 51-63 for such *mapping first* protocol to *second* protocol using an *intermediate* protocol, which can be summarized as: "ADSL protocol" ↔ "internal protocol" ↔ "WAN protocol").

Deng however does not disclose regarding all cited claims hereinabove, said "conversion" or *mapping* is with respect to *Class of Services* or *CoS.*

However, *CoS mapping* or conversion between different protocols is well known in the art at the time of the present invention, which is admitted by the Applicant (see present application page 2 paragraph [0006] "The various protocols often required different formats and techniques for supporting and communicating the QoS information. Consequently, network devices, such as routers, often employ complex mapping techniques to preserve CoS when packets are forwarded from one forwarding domain to another, i.e., from one protocol to another"), and which is also taught in Gobbi as discussed below.

Gobbi discloses an invention that "provides for the transmission IP data over an ATM switch architecture in a communication network (Abstract lines 1-2) comprising,

regarding claims 1, 15, 26 and 29, mapping *CoS* between different network protocols ("additionally, it [the invention] allows a mapping of IP differential services to the ATM quality of service classes", [0017] last two lines).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method/system/device of Deng by incorporate the CoS of either the applicant admitted art or Gobbi into Deng's protocol mapping/conversion/translation in order to provide a more robust system "in the application to the case of a geographically-broad coverage, fast packet switch" (Gobbi page 5 left column lines 21-22).

- **With respect to Dependent claims**

  Deng discloses the following features:

  Claims depending from claim 1:

  Regarding claim 2, *wherein indirectly mapping comprises:*

  applying a first policy to map the first protocol *information to the intermediate* protocol *information; and*

  applying a second policy to map the intermediate protocol *information to the second* protocol *information.*

  (as discussed above regarding claim 1, Deng provides "ADSL protocol" ↔ "internal protocol" ↔ "WAN protocol" protocol mapping, which will have to require *a first policy to map* "ADSL protocol" ↔ "internal protocol" and *a second policy to map* "internal protocol" ↔ "WAN protocol").

Regarding claim 3, *wherein the first policy comprises a protocol-specific policy in accordance with the first network protocol, and*

wherein the second policy comprises a protocol-specific policy in accordance with the second network protocol.

(*first/second policy for* "ADSL protocol" ↔ "internal protocol"/ "internal protocol" ↔ "WAN protocol" *mapping* must be "ADSL protocol"/"WAN protocol"-*specific*).

Regarding claim 5, *wherein receiving a packet comprises receiving the packet with a first interface* (fig. 5, e.g., "ADSL modem 174" and "protocol converter 172" *receiving packets* of "ADSL protocol") *of a network device* (fig. 5, "ADSL access device 14"); *and*

wherein forwarding a packet comprises forwarding the packet with a second interface of the network device (fig. 5, e.g., "protocol converter 162" *forwarding packets* of "WAN protocol").

Regarding claim 6, *wherein the first interface is associated with a first interface card* (fig. 5, e.g., "ADSL modem 150") *of a network router* (fig. 5, e.g., "SPC [switching port controller] 170"), *and the second interface is associated with a second interface card* (fig. 5 "external port") *of the network router.*

Regarding claim 7, *updating the packet with the first interface to include the intermediate* protocol *information* (this comes naturally in Deng's device since *the packet* in Deng's device will contain the "internal protocol" after, for example, the "ADSL protocol" ↔ "internal protocol" conversion and before the "internal protocol" ↔ "WAN protocol" conversion); *and*

communicating the packet and the intermediate protocol *information from the first interface to the second interface* (this also comes naturally since *the packet* in Deng's device will carry the "internal protocol" *from* for example the *first interface* "protocol converter 150" to the *second interface* "protocol converter 162" or vice versa).

Regarding claim 8, *wherein updating the packet with the first interface* (fig. 5, e.g., "protocol converter 170" *comprises adding a header to the packet that specifies the intermediate* protocol *information* (as discussed above regarding claim 1, the "protocol converter 170" performs "ADSL protocol" ↔ "internal protocol" mapping which ends up with *adding a header to the packet that specifies intermediated* protocol *information* "internal protocol").

Regarding claim 9, *wherein forwarding the packet comprises:*

removing the intermediate protocol *information from the packet with the second interface;*

updating the packet to include the second protocol *information; and*

forwarding the packet with the second protocol *information with the second interface.*

(as discussed regarding claim 1, Deng's disclosure can be illustrated as: packet(ADSL) ↔ packet(internal protocol) ↔ packet(WAN), which clearly teaches above feature).

Regarding claim 10, *wherein the intermediate* protocol *information comprises protocol-independent metadata associated with the packet* ("an internal format of the

access device, such as for example direct memory access (DMA) bus", col. 7 lines 54-55).

Regarding claim 12, *wherein receiving a packet comprises receiving the packet with a router; and wherein forwarding the packet comprises forwarding the packet with the router* (fig. 5 "ADSL access device 14" together with "WAN router 16" and having various "SPC [switching port controller]" effectively provides the functionality of a *router*).

Regarding claim 13, *wherein forwarding the packet comprises forwarding the packet with a centralized forwarding engine of the router* (fig. 5 "protocol converter 162" *centralizes packet forwarding* from various "ADSL modems 174/184/194" to a "WAN router 16").

Regarding claim 14, *wherein forwarding the packet comprises forwarding the packet with a forwarding component within an interface card of the router* (fig. 5, e.g., "ADSL modem 150" within "ADSL channel controller 150" and *forwarding packets* to ADSL network from a WAN).

Claims depending from claim 15:

Regarding claim 16, *wherein the first interface applies a first policy to map the first* protocol *information to the intermediate* protocol *information; and*

wherein the second interface applies a second policy to map the intermediate protocol *information to the second* protocol *information.*

(as discussed above regarding claim 15, Deng provides "ADSL protocol" ↔ "internal protocol" ↔ "WAN protocol" protocol mapping, which will have to require *a first*

policy to map "ADSL protocol" ↔ "internal protocol" and *a second policy to map* "internal protocol" ↔ "WAN protocol").

Regarding claim 17, *wherein the first policy comprises a protocol-specific policy in accordance with the first network protocol, and*

wherein the second policy comprises a protocol-specific policy in accordance with the second network protocol.

(*first/second policy for* "ADSL protocol" ↔ "internal protocol"/ "internal protocol" ↔ "WAN protocol" *mapping* must be "ADSL protocol"/"WAN protocol"-*specific*).

Regarding claim 19, *wherein the first interface is associated with a first interface card* (fig. 5, e.g., "ADSL modem 150") *of a network router* (fig. 5, e.g., "SPC [switching port controller] 170"), *and the second interface is associated with a second interface card* (fig. 5 "external port") *of the network router.*

Regarding claim 20, *wherein the first interface adds the intermediate* protocol *information to the packet* (this comes naturally in Deng's device since *the packet* in Deng's device will contain the "internal protocol" after, for example, the "ADSL protocol" ↔ "internal protocol" conversion and before the "internal protocol" ↔ "WAN protocol" conversion); *and communicates the packet and the intermediate* protocol *information to the second interface* (this also comes naturally since *the packet* in Deng's device will carry the "internal protocol" *from* for example the *first interface* "protocol converter 150" to the *second interface* "protocol converter 162" or vice versa).

Regarding claim 21, *wherein the second interface removes the intermediate* protocol *information from the packet, and adds the second* protocol *information to the*

packet (as discussed regarding claim 1, Deng's disclosure can be illustrated as: packet(ADSL) ↔ packet(internal protocol) ↔ packet(WAN), which clearly teaches above feature).

Regarding claim 22, *wherein the intermediate* protocol *information comprises protocol-independent metadata associated with the packet* ("an internal format of the access device, such as for example direct memory access (DMA) bus", col. 7 lines 54-55).

Regarding claim 25, *wherein the first interface is associated with a first interface card, and the second interface is associated with a second interface card* (this is essentially the same as claim 19 and thus rejected on the same ground thereof).

Claims depending from claim 26:

Regarding claim 27, *wherein the network device applies policies to map the first* protocol *information to the intermediate* protocol *information and to map the intermediate* protocol *information to the second* protocol *information.*

(as discussed above regarding claim 26, Deng provides "ADSL protocol" ↔ "internal protocol" ↔ "WAN protocol" protocol mapping, which will have to require *apply policies* to govern such *mapping*).

(Examiner's note: this claim should be dependent on claim 26 instead of currently 27, which creates self-dependency. Correction is required).

Regarding claim 28, *wherein the network device comprises a router* (fig. 5 "ADSL access device 14" together with "WAN router 16" and having various "SPC [switching port controller]" effectively provides the functionality of a *router*).

Claims depending from claim 29:

Regarding claim 30, *further comprising instructions to cause the processor to apply a policy to packet to generate the intermediate* protocol *information* ("internal protocol) *from the first* protocol (e.g. "ADSL protocol")

Regarding claim 31, *wherein the policy comprises a protocol-specific policy in accordance with the first network protocol*

(as discussed above regarding claim 29, Deng provides "ADSL protocol" ↔ "internal protocol" protocol mapping, which will have to require *apply a policy to packet to generate* "internal protocol", claim 30, and it must be *in accordance with the* "ADSL protocol", claim 31).

Regarding claim 32, *wherein the intermediate* protocol *information comprises protocol-independent metadata associated with the packet* ("internal protocol" must have "an internal format of the access device, such as for example direct memory access (DMA) bus", col. 7 lines 54-55).

Deng does not but Applicant admitted art or, alternatively, Gobbi, does disclose, regarding **claims 2,5,7-10,16,20-22,27,30 and 32**, that a mapping or conversion is performed particularly with respect to the *Class of Service or CoS.*

(For Applicant admitted art, see present application page 2 paragraph [0006] "The various protocols often required different formats and techniques for supporting and communicating the QoS information. Consequently, network devices, such as routers, often employ complex mapping techniques to preserve CoS when packets are forwarded from one forwarding domain to another, i.e., from one protocol to another";

and for Gobbi, see "additionally, it [the invention] allows a mapping of IP differential services to the ATM quality of service classes", [0017] last two lines).

7. Claims 4 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deng (US 6,243,394) in view of Applicant admitted art or alternatively in view of Gobbi et al (US 2002/0044558, Gobbi hereinafter), as applied above to claims 2 and 16, and further in view of Brothers (US 2002/0083178).

Deng in view of Applicant admitted art or in view of Gobbi discloses claimed limitations in paragraph 3 above. Deng further discloses the following features:

Regarding claims 4/18, *configuring/configure the first and the second policy* (as discussed above in paragraph 3, Deng discloses first/second protocol mapping of "ADSL protocol" ↔ "internal protocol"/"internal protocol" ↔ "WAN protocol", for which it is necessary that *first/second policies* be *configured* inside the "ADSL access device")

Deng in view of Applicant admitted art or in view of Gobbi however does not disclose regarding claims 4/18 *presenting/present a user interface to receive input; and* configuring/configure the policies *based on the input.*

Brothers discloses a method for "resource distribution in network environment" (Title) using a "web access device" (fig. 1A block 12) to access a "network" (fig. 1A item 18) comprising above cited features, particularly:

Regarding claims 4/18, *presenting/present a user interface to receive input; and* configuring/configure the policies *based on the input* (refer to fig. 1A "web access device 12" and see "'Graphic user interface' or 'GUI' refers to the display and input unit of a

web access device that a user operates to interact with the web access device", [0063], and 'Input device' refers to a keyboard, mouse want or any other devices that can be operated by a user to input commands or data in a web access device", [0064]).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to further modify the "ADSL access device" of Deng by adding a user interface of Brothers to Deng in order to provide a more secured system that "can be used to distribute a resource in a network environment in a manner that can be controlled by a resource provider" (Brothers [0013]).

8. Claims 11, 23 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deng (US 6,243,394) in view of Applicant admitted art or alternatively in view of Gobbi et al (US 2002/0044558, Gobbi hereinafter), as applied above to claims 1, 15 and 29, respectively, and further in view of Chen et al (US 2003/0053464, Chen hereinafter).

Deng in view of Applicant admitted art or alternatively in view of Gobbi discloses claimed limitations in paragraph 3 above with especially the Applicant admitted art or Gobbi disclosing *the first/second CoS information* being used for *CoS mapping/conversion* between different networks.

Deng in view of Applicant admitted art or alternatively in view of Gobbi however does not disclose regarding claims 11, 23 and 33 that the first/second CoS *each comprise one of Internet Protocol (IP) Type of Service (ToS) information, Multiple Lable Switching (MPLS) experimental (EXP) bits, Virtual Local Area Network (VLAN) user priority information, and Internet Protocol version 6 (IPv6) traffic class information.*

Chen discloses "a method of sending data packet through a Multiple Label Switching MPLS network" (Abstract lines 1-2) comprising, **regarding claims 11/23/33**, above cited feature ("some classes of service can be supported by label switched paths", [0043] lines 1-2, and "the EXP (the experimental bits) field in MPLS header is used by the label switched router (LSR) to determine the per hop behaviour (PHB) to be allied to the packet", [0056]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the method/system of Deng by adding the MPLS network and associated MPLS EXP CoS of Chen to Deng in order to provide a more efficient system able to eliminate or minimize the problem that "'upward-and-then-downward' protocol header processing and the whole-length header-examination inevitably incur high control overhead and cause transmission and control in-efficiency" (Chen, [0006]).

9. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Deng (US 6,243,394) in view of Applicant admitted art or alternatively in view of Gobbi et al (US 2002/0044558, Gobbi hereinafter), as applied above to claims 15, and further in view of Hughes (US 6,434,612, Hughes hereinafter).

Deng in view of Applicant admitted art or alternatively in view of Gobbi discloses claimed limitations in paragraph 3 above with especially Deng disclosing *the first/second interfaces* (Deng fig. 5, e.g., "protocol converters 172/162").

Deng in view of Applicant admitted art or alternatively in view of Gobbi however does not disclose regarding claim 24 that the first/second interfaces each *comprises a logical interface.*

Hughes discloses "a connection control interface for switches in a network" (Abstract line 1) using a "multiple VSI controller" (fig. 7) comprising:

Regarding claim 24, an interface *comprises a logical interface* (some "controllers may control all interfaces because each controller is presented a view of a switch having a particular set of logical interfaces. The logical interfaces are either physical interfaces or virtual interfaces, and the set of logical interfaces presented to different controllers will differ", col. 7 lines 15-20)

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the system of Deng by adding the logical interface configuration of Hughes to Deng in order to provide a better connection mechanism to overcome prior art problem wherein "prior art connection protocols do not support distributed processing thereby requiring connection control messages to be sent to a single point on the associated switch", which "creates a bottleneck in communications" and "complicate the task of managing and controlling a network switch and limit the flexibility and performance scalability of the network" (Hughes col. 3 lines 16-22).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 2003/0219023 discloses a packet transfer apparatus converting IPv4 and IPv6 addresses using internal protocols within the conversion apparatus.

US 6,331,987 provides QoS/CoS mapping and conversion for data-over-cable systems.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Lai whose telephone number is 571-272-9741. The examiner can normally be reached on M-F 7:30-5:00 EST, Off alternative Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on 571-272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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AL

KWANG BIN YAO
SUPERVISORY PATENT EXAMINER